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## SERVICE BULLETIN

# 100.001

(Supersedes 880-062097 &  
880-061997)

Nov. 15, 2000

**TO:** Wells Authorized Service Agencies  
**FROM:** Hanju Lee  
**SUBJECT:** McDonald's Convection Oven Maintenance, Adjustment and Calibration



### CAUTION: BURN HAZARD

Exposed surfaces can be hot to the touch and may cause burns.

The following information applies to McDonald's® Convection Ovens Models M4200-2 thru M4200-3S series and includes ovens with both early-style and current production solid state controllers.

- A. Early units had a temperature controller (p/n 63870) with screwdriver adjustment for setting and/or calibration, and utilized a separate timer board (p/n 63040). See page 2 for setting and calibration instructions.
- B. Current production ovens use an integrated controller/timer board (p/n 64964) with a built-in key pad for all temperature control, calibration and timer functions. See page 3 for setting and calibration instructions. Some common concerns:
  - 1. There have been occasional interruptions in the newer controllers caused by random radio frequency noise. The controller temperature will be reset to its default setting (100°F) causing the oven to not heat. If this happens, the controller has lost it's memory and must be reset:
    - a. Unplug the power cord for 5 minutes, reconnect power cord.
    - b. Reset the SET temperature per page 3.
    - c. If the problem persists, a radio frequency interference filter is available as p/n 502021.
  - 2. If the oven will not hold calibration within  $\pm 3^{\circ}\text{F}$  ( $1^{\circ}\text{C}$ ) one possibility is that calibration was done without allowing the oven temperature to stabilize:
    - a. Set-up the oven per the calibration instructions on page 3.
    - b. Allow at least five complete heating cycles before calibrating the oven controller.
- C. Both early-style and current production ovens may experience an oven blower failure:
  - 1. Not all failures are actually the motor itself. Often, the problem is with the capacitor rather than the motor.
  - 2. See page 5 for instructions on troubleshooting the motor.
  - 3. See page 5 for an upgrade to locate the capacitor to a lower heat area. This will extend the life of the capacitor.

## SETTING AND CALIBRATING OVEN TEMPERATURES

### EARLY-STYLE CONTROLS (UNITS WITH SEPARATE TIMER AND CONTROLLER)

Monthly      Check Calibration (Oven with screwdriver adjustments) See figure 1

Tools:      ● Small flat blade screwdriver, digital thermometer with oven probe and mitt.



#### CAUTION: BURN HAZARD

Oven surfaces will be hot during these tests. Use oven mitt when clamping and removing the oven probe.

1. Ensure that the power cord is plugged into the appropriate power supply receptacle.
2. Open the door and mount the oven probe in the center of the middle rack and close the door.
3. Place the ON/OFF/FAN switch in the *ON* position and allow the oven to warm up:
  - a. 45 minutes for the M4200-2 or M4200-2S
  - b. 30 minutes for the M4200-3 and M4200-3S
 This will allow the oven temperature to stabilize.

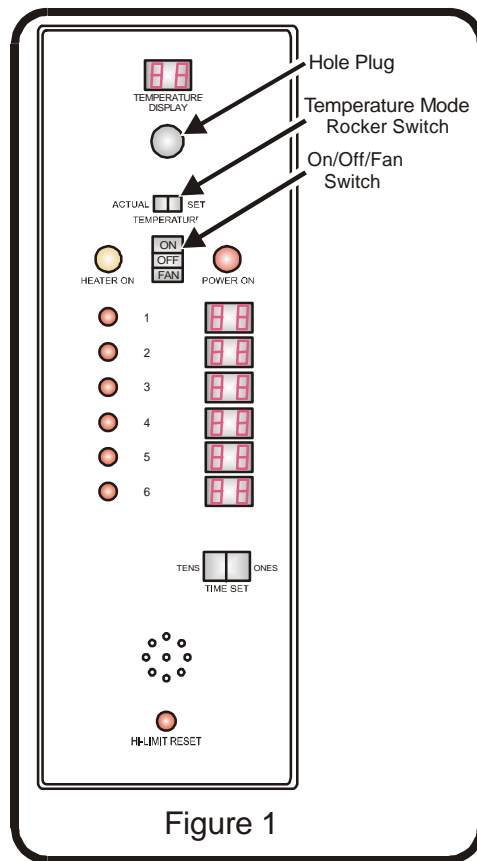
**Note:** Oven must be empty.

**Note:** The temperature display is “on demand only”. No temperature will be displayed until the temperature mode rocker switch is pressed to the *ACTUAL* or *SET* position.

4. As soon as the “heater on” light comes ON, depress the temperature *MODE* rocker switch to the *ACTUAL* (left) position and compare the temperature from the oven display against the temperature on the test thermometer.

**Note:** In the *ACTUAL* position, the temperature display will be constant.

5. If the temperatures are not within  $\pm 3^{\circ}\text{F}$  ( $1^{\circ}\text{C}$ ) of each other, pry off the hole plug at the upper area of the control panel and turn the CAL temperature adjust screw using the small flat-blade screwdriver until the two temperature displays are within  $\pm 3^{\circ}\text{F}$  ( $1^{\circ}\text{C}$ ) of each other. Turn **CLOCKWISE** to **INCREASE** or **COUNTERCLOCKWISE** to **DECREASE** the displayed temperature.
6. Open the door and remove the oven probe.



## SETTING AND CALIBRATING OVEN TEMPERATURES

### CURRENT PRODUCTION CONTROLS

Monthly Check Calibration (Oven with keypad adjustments) See figure 2

Tools: ● Digital thermometer with oven probe and mitt.



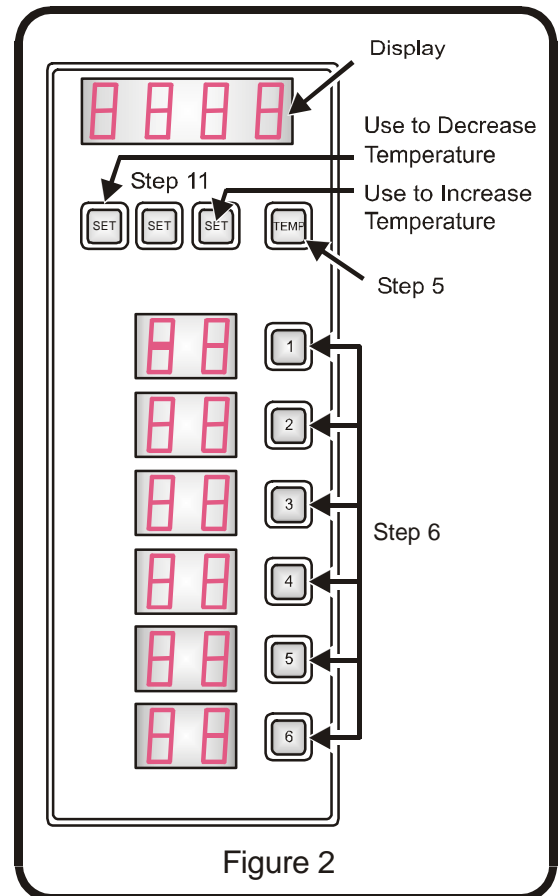
#### CAUTION: BURN HAZARD

Oven surfaces will be hot during these tests. Use oven mitt when clamping and removing the oven probe.

1. Ensure power cord is plugged into the appropriate power supply receptacle.
2. Open the door and clamp the oven probe in the center of the middle rack.
  - a. Pass the oven probe wire between the door and door gasket. Close the door.
  - b. Plug the probe wire into the digital thermometer.
3. Place the ON/OFF/FAN switch in the ON position.
4. Allow the oven to warm up for 30 minutes.

**Note:** All product cooking timers must be in the idle mode (low intensity display) before calibration can begin.

5. Press and hold the temp. button for 10 seconds. The display should be flashing "CAL b".
6. Press the product timer buttons in sequence (1-6). The temperature display will read " - " and will remain that way until step 8.
7. Note the reading on the digital thermometer when the heat ON (Amber) light goes from ON to OFF.
8. When the heat ON light goes OFF there will be an audible beep and the temperature display will record the temperature of the oven at that time.
9. The temperature displayed on the oven should be within 3° F (1° C) of the thermometer displayed on the digital thermometer. If the temperatures are within 3° F (1° F C), this calibration check is complete. If the difference is greater than 3° F (1° C), proceed to step 10.



10. Use the SET buttons located below the temperature display (Figure 2) to set the displayed temperature so that it is the same as the reading on the digital thermometer.
11. Use the right-most SET button to increase the temperature and the left-most SET button to decrease the temperature (Figure 2) A maximum of 50° F (33° C) correction can be made to the original temperature reading.
12. Press the temp button to record the new setting and to exit the calibration mode.
13. Place the ON/OFF/FAN switch to the OFF position.



**CAUTION: BURN HAZARD**

Oven surfaces will be hot during these tests. Use oven mitt when clamping and removing the oven probe.

14. Open the oven door and remove the oven probe.

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**Monthly** Cleaning The Fan

**Tools:** ● Brush, towel.

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1. Disconnect the power cord.
  2. Remove the racks and rack supports.
  3. Remove the fan baffle.



**CAUTION: CUT HAZARD**  
**FAN BLADES ARE SHARP.**

Use care when cleaning or wiping the fan blades

4. Brush the fan wheel and wipe it with a moist towel. Wipe out all loose particles.
5. Install fan baffle.
6. Install the rack supports and racks. Procedure is complete.

## BLOWER MOTOR TROUBLESHOOTING

**SYMPTOM:** The blower does not run when the ON/OFF/FAN switch is placed in the “ON” position:

- A. Be sure the door is closed. Press the ON/OFF/FAN switch to “ON”. If the blower does not start, press the ON/OFF/FAN switch to “FAN”. If the blower starts, the door proximity switch is misaligned or defective and must be aligned or replaced.



**CAUTION: CUT HAZARD**  
FAN BLADES ARE SHARP. MOTOR MAY START UNEXPECTEDLY.  
Use care when attempting to rotate blower wheel.

- B. If the blower does not start: With the power “OFF”, use a pencil or other object and attempt to rotate the blower wheel.
1. If it does not turn freely, the blower wheel may be in contact with the cabinet. Readjust the blower wheel and tighten the set screws.
  2. If the blower wheel does not touch the cabinet, and the blower wheel does not rotate freely, the blower motor bearings are frozen. Replace the motor.
- C. If the blower wheel turns normally, turn on the ON/OFF/FAN switch to “FAN” and attempt to rotate the blower wheel as above. If the motor starts and runs normally, the motor start capacitor has failed and must be replaced.
1. If the capacitor is mounted as shown in figure 3B, use part number 69823.
  2. If the capacitor is mounted as shown in figure 3A, use Kit # 500952.

Items included in kit:

CAPACITOR p/n 69823

BRACKET p/n 500933

With power cord unplugged, remove and discard old capacitor, housing and 2 screws mounting housing to motor.

Mount new capacitor bracket to cover screw (D)

Insert new capacitor in bracket, tighten screw (C).

Connect capacitor wires.

This completes the relocation.

Plug in power cord.

**NOTE:** Early units had the motor capacitor installed directly on the side of the motor, which resulted in a higher operating temperature. By relocating the capacitor to the end of the motor, the motor cooling fan also cools the capacitor, helping to increase capacitor life. With mounting bracket p/n 500933, or kit # 500952, the capacitor can be relocated as shown in figure 3.

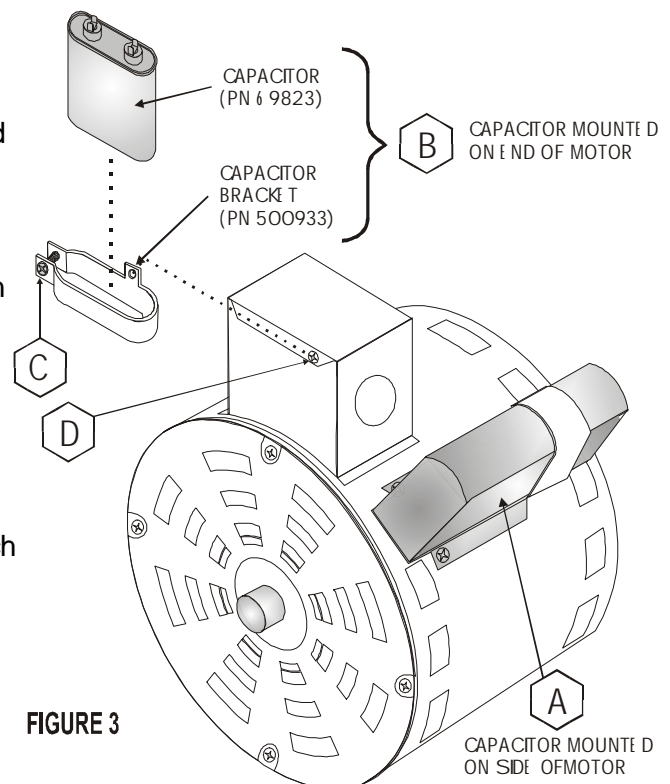


FIGURE 3

- D. If the blower wheel rotates freely, but will not start when rotated manually, check for a wiring or electrical problem.